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(71) Applicant (for all designated States except US): SAINT-GOBAIN ISOVER [FR/FR]; Les Miroirs, 18, avenue d'Alsace, F-92400 Courbevoie (FR).			
(72) Inventors; and (75) Inventors/Applicants (for US only): BOGE, Birgit [DE/DE]; Tannhäusering 174, D-68199 Mannheim (DE). TRAPP- MANN, Jürgen [DE/DE]; Lessingstr. 25, D-68723 Plankstadt (DE). HOLSTEIN, Wolfgang [DE/DE]; Herder- str. 2, D-35315 Homberg (DE).		Published With international search report.	
(74) Agents: HERRMANN-TRENTEPOHL, W. et al.; Her- mann-Trentepohl, Grosse, Bockhorni & Partner GbR, Forstenrieder Allee 59, D-81476 München (DE).			

**(57) Abstract**

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## MARKINGS ON MINERAL WOOL PRODUCTS IN PARTICULAR

The invention pertains to markings in plane mineral wool products in particular, mineral wool sheets and/or mineral wool pates in particular, which can serve as cutting or orientation help and also, however, for product identification.

For so-called clamping felts in particular, modular marking lines are known which are arranged at regular intervals with one another across to the longitudinal direction of an insulation material sheet seen in longitudinal direction of the insulation material sheet at intervals of e.g. 100 mm. These known marking lines are generated using hot-air nozzles causing local heating with corresponding burned-in markings on the surfaces of an insulation material sheet. In particular, such marking lines are formed intermittently. In the clamping felts these clamping marking lines have the meaning of offering the consumer a cutting aid. In particular, when the insulation material sheets are used for rafter insulation where rafter intervals with different distances have to be considered, after measurement of the rafter interval a section corresponding to the interval is cut from the insulation material sheet and then is placed in transverse direction to the rafter into the interval between the rafters. This rafter insulation in substantial volume gained ground on the market, wherein laying is carried out under the principle that a plate is cut from the roll, which then is inserted between the rafters with correct pressure fit and is held by clamping effect.

The further developments described herein account for the point of view that on the market more and more it is attempted to individualize the own products also with the aid of the markings, wherein, however, nevertheless suitability of these markings as cutting and orientation aid is to be maintained. In addition, also the point of view of universality has to be taken into account, i.e. mineral wool products are used for other cases of application

not only schematically but they must be ready and prepared for use for other applications in which e.g. cutting and orientation aids are to be made available also in other directions, e.g. for cutting triangles or geometrical figures.

The invention is characterized by the features contained in the independent claims, preferred further developments resulting from the features from the subsequent subclaims.

As solution the invention provides for the following marking variations, wherein the markings can be applied or provided for by hot nozzles but also by coloring or by other means and methods.

In the following preferred embodiments are explained as examples only with reference to the figs. 1 to 11 which show sections of insulation material sheets in top view with corresponding marking patterns. Herein it is a matter of a purely schematic representation which, however, records the regular structure wherein, however, for the sake of simplicity the structures are shown over a part of the shown insulation material sheet section only, this having been done for reason of simplification of drawing only. Of course, patterns result over the entire length of the insulation material sheet at corresponding intervals.

**First solution under Fig. 1:**

The insulation material sheet 1 out of mineral wool shows modular markings over the length of the insulation material width, wherein the markings only partly are shown over the length, in the kind of markings and/or stroke lines 2 which are arranged inclined with an angle  $\alpha$  to the longitudinal direction of the insulation material sheet and also intervals to one another.

In the shown embodiment three marking strokes are shown over the width, wherein preferably one stroke marking 2 each is respectively arranged from each long rim and the third stroke marking is arranged in the area of the middle of the insulation material sheet.

In this embodiment the upper and lower ends of the stroke markings of the same lengths which if they are mutually connected by a straight line are arranged on a common imaginary transverse line perpendicular to the long rim of the insulation material sheet on one hand serve as cutting aid for cuts perpendicular to the long rims of the insulation material sheet but also as cutting aid for diagonal cuts.

Of course, also more than three stroke markings can be provided for over the width of the insulation material sheet, this being particularly suitable chosen in correspondence with the given widths of the insulation material sheet.

**Second solution under Fig. 2:**

Here, too, the markings 2 for representation only are arranged in the lower area, wherein here like in all other modifications it has to be assumed that these are arranged in modular manner, i.e. uniformly repeating, over the entire length of the mineral wool product, here the insulation material sheet.

The markings 2 here are formed by geometrical patterns and forms, in particular squares, triangles, rectangles, polygons in any form, which are arranged periodically and/or modularly, respectively, along and across the insulation material sheet, i.e. transverse to the longitudinal extension and in longitudinal extension of the insulation material sheet.

Here, in case of square markings the sides of the square extending transverse to the long rims form the cutting and orientation aid.

These squares permit an optically favorable appearance and also allow a corresponding coloring, wherein the squares also can be used for product information and manufacturer information.

**Third solution under Fig. 3:**

This solution is similar to Fig. 2 as far as the arrangement of the markings is concerned which here are required or formed, respectively, in the kind of dot-shaped formations. These dot-shaped formations or dots 2 when connected one with the next and transversally by imaginative lines so-to-speak form parallel long lines and parallel transverse lines, the long lines extending in direction of the longitudinal extension of the insulation material sheet and the transverse lines across thereto.

The dot-shaped formations 2 herein serve as cutting aid once in longitudinal direction, once in transverse direction, but also in direction of the diagonal as is symbolized by the imaginative line of intersection 3. Such diagonal cuts more frequently occur in roof treatment.

**Fourth solution under Fig. 4:**

This fourth solution is characterized by a variation of different marking groups, here in total 2 groups which are repeated regularly.

The first marking group is formed by stroke markings 2a extending in longitudinal direction whose upper or lower ends result in an imaginative line across to the longitudinal extension of the insulation material sheet and to that extent permit a cross-section whose longitudinal orientation permit a longitudinal cut. Between two of these groups of stroke markings 2a which each are formed of three rows on top of one another, diagonally extending stroke markings 2b are arranged whose upper lower ends also form imaginative transverse marking lines which, however, also permit a diagonal cut, as is shown by the imaginative line of intersection 3.

Also if here in transverse direction three stroke markings 2a are respectively shown in three row one on top of the other and three rows of stroke markings 2b are shown, the

number of stroke markings and there rows can of course be varied. This also is true for the number of varying groups.

**Fifth solution under Fig. 5:**

The modification under Fig. 5 again shows geometrical patterns one beside the next in transverse direction, here three trapezoids 2, and in rows one on top of the other, wherein the geometrical patterns due to the lines in longitudinal and transverse direction of the insulation material sheet permit transversal and longitudinal cuts in particular, the obliquely extending lines, however, i.e. the lines extending with an angle to the longitudinal direction also permitting diagonal and oblique cuts.

**Sixth solution under Fig. 6:**

In this embodiment the markings again are determined by geometrical patterns 2a and 2b which differ from one another but are repeated. This embodiment again permits oblique cuts and also cutting wedges and the like.

**Seventh solution under Fig. 7:**

In this embodiment under Fig. 7 the obliquely extending markings 2 are made in the shape of girders or flags. This kind of geometrical patterns frequently can be found as firm label such that by these geometrical pattern so to speak the firm label is contained on the insulation material sheets or other mineral wool products in product-specific manner and simultaneously serves as cutting and orientation aid. Of course, also here it is possible to alternate the markings, namely regularly, such that also a change between geometrical form and firm label or product information, respectively, is possible. Here, also the letters of firm names e.g. or the firm name in total can be included here as modular markings.

**Eighth solution under Fig. 8:**

The markings under Fig. 8 are characterized by mutually crossing stroke markings 2a and 2b such that different diagonal cuts are possible but also transverse and longitudinal cuts due to the regular arrangement of the ends of the stroke markings in alignment with one another.

**Ninth solution:**

The embodiment modifications under solution 9 are characterized by markings in the kind of dot-like or geometrical patterns 2 or stroke markings 3 or continuous transverse marking lines 4, respectively, which are arranged with regular intervals to one another. In the left-hand embodiment under Fig. 9 on top at total of four rows one beside the other, of markings 2 are provided for. Here transverse cuts and longitudinal cuts but also diagonal cuts are possible.

The embodiment modification shown therebelow adjacent to the long rims comprises markings 2 arranged one on top of the other and aligned. Here, too, transverse cuts, longitudinal cuts and diagonal cuts are possible.

The central modification under Fig. 10 shows stroke markings 3 extending in longitudinal direction, here again transverse cuts and longitudinal cuts but also diagonal cuts being possible.

The modification shown on the right hand side under Fig. 11 shows continuous marking lines which permit transverse cuts in particular.

The elucidated solutions with their features are claimed individually and in combination with one another.



### Patent Claims

1. Insulation material sheet which may be wound up to a roll, out of mineral wool for insulation of roofs, which is provided with markings distributed over the length of said insulation material sheet, which facilitate cutting-off of insulation material sections from said sheet by means of a separating cut, **characterized in that** said markings with an essential portion of their section are arranged on said insulation material sheet with an orientation directed in difference to the perpendicular to the long axis of said insulation material sheet and/or that at least a part of said markings distributed over said insulation material sheet is arranged on said insulation material sheet with an orientation directed in difference to the perpendicular to the long axis of said insulation material sheet and/or that said markings with respectively adjacent markings each are aligned such that the imaginative line between adjacent markings results in a straight line in oblique direction to the long axis of said insulation material sheet and/or that said markings are formed by plane formations, geometrical ones in particular and/or that at least a part of the markings is arranged crosswise to the longitudinal axis of the sheet.
2. Insulation material sheet which may be wound up to a roll, out of mineral wool for insulation of roofs, which is provided with markings distributed over the length of said insulation material sheet, which facilitate cutting-off of insulation material sections from said sheet by means of a separating cut, **characterized in that** said markings are formed by crosses several of which are arranged one beside the other with an interval on a perpendicular to the long axis of said insulation material sheet and that said groups of markings are arranged with intervals over the long axis of said insulation material sheet.
3. Insulation material sheet as defined in claims 1 or 2, **characterized in that** said markings are arranged with intervals transversely to the long axis of said insulation material sheet in a row and a plurality of rows is arranged over the longitudinal di-

rection of said insulation material sheet (1) with uniform longitudinal intervals or with a regularly repeating distance pattern with respect to one another.

4. Insulation material sheet as defined in one of the preceding claims, **characterized in that** said marking (2) each is formed by a line directed in oblique direction to the long axis of said insulation material sheet (1).
5. Insulation material sheet as defined in one of the preceding claims, **characterized in that** said marking (2a, 2b) is formed by geometrical patterns, in particular trapezoid, square, rectangle, triangle or the like.
6. Insulation material sheet as defined in one of the preceding claims, **characterized in that** said markings are formed by dot-shaped formations.
7. Insulation material sheet as defined in one of the preceding claims, **characterized in that** said markings are formed by lines arranged obliquely to the long axis and/or in direction of the long axis and/or normally to the long axis or geometrical patterns which are arranged in transverse direction to the long axis with intervals, wherein the patterns formed by several markings are regularly repeated in direction of the long axis.

### Abstract

In a insulation material sheet wound to a roll, out of mineral wool, for insulating roofs markings in regular pattern forms are arranged distributed over said insulation material sheet in transverse direction to the longitudinal direction of said insulation material sheet for simplification of cutting off.

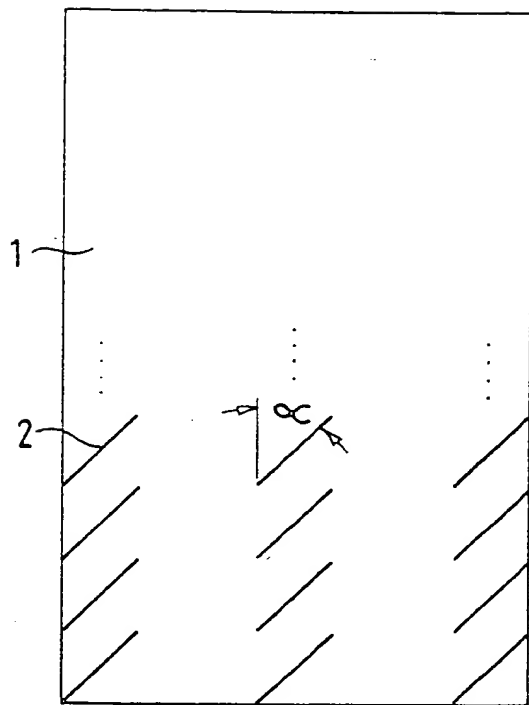


FIG. 1

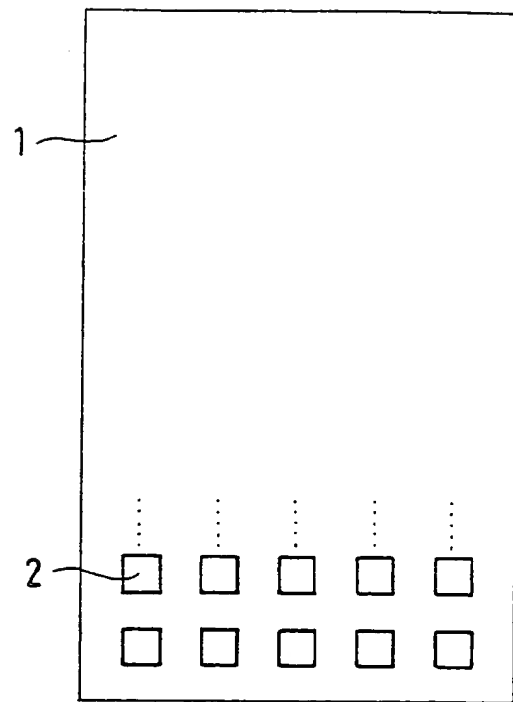


FIG. 2

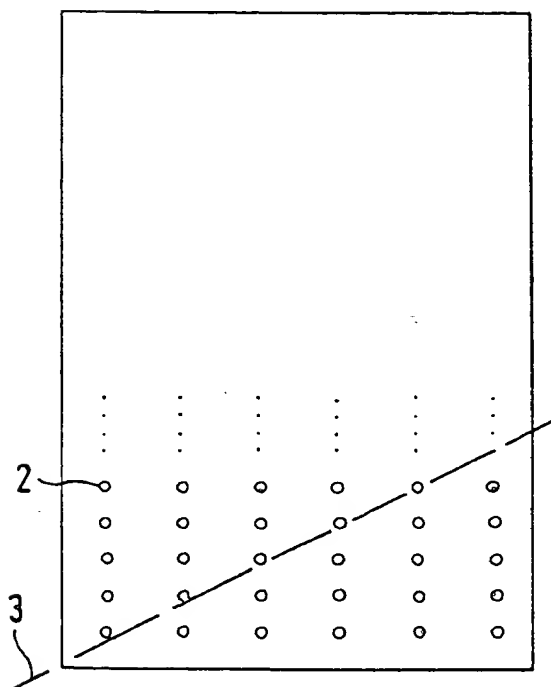


FIG. 3

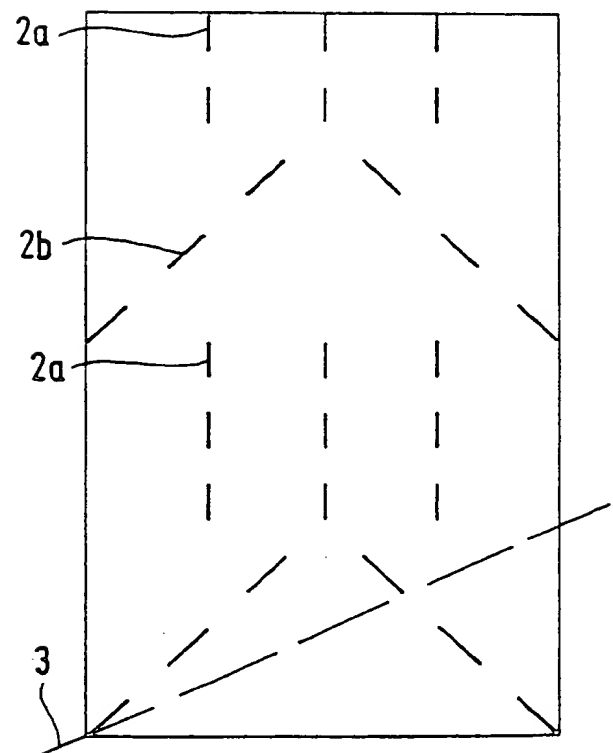


FIG. 4

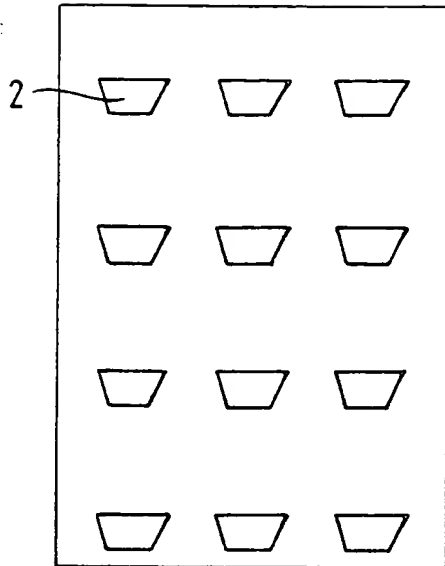


FIG. 5

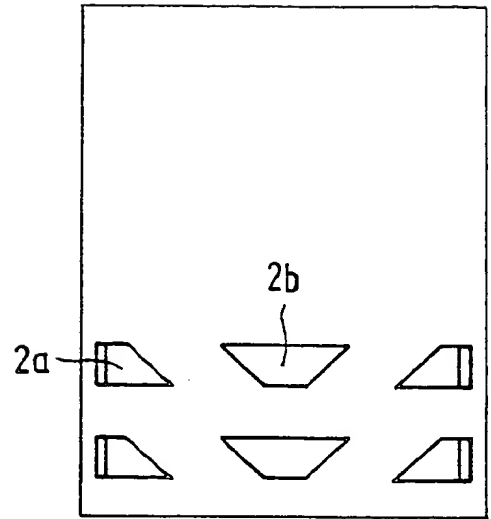


FIG. 6

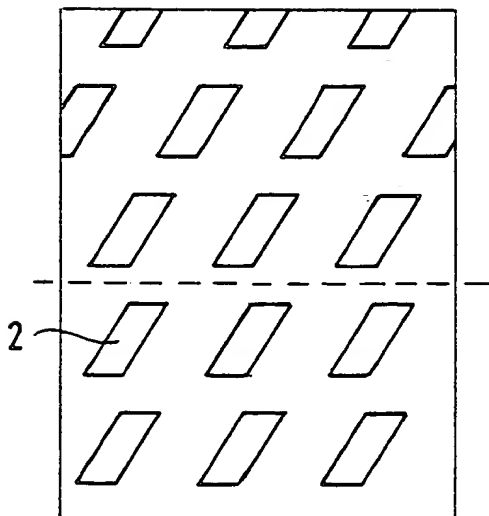


FIG. 7

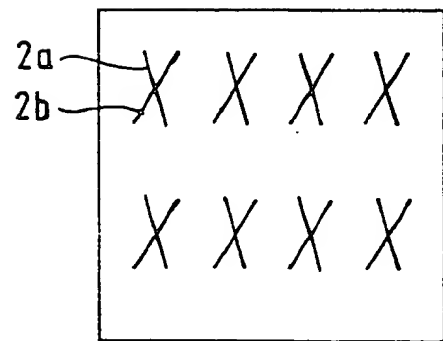


FIG. 8



FIG.9

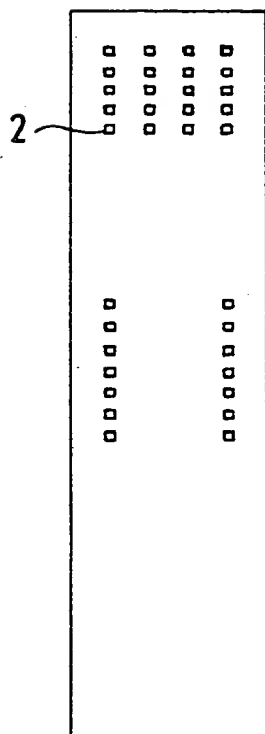


FIG.10

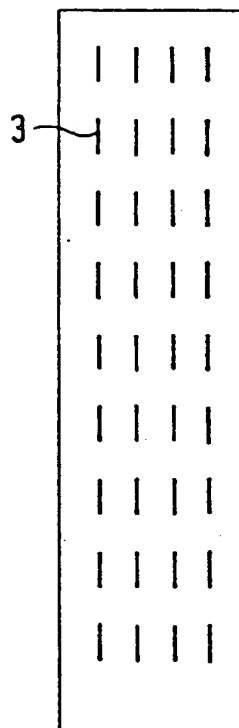


FIG.11

